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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

SAVANI, AVINASH A

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/550,253	<b>Applicant(s)</b> PAPAGEORGIOU, CHRISTOS	
	<b>Examiner</b> AVINASH SAVANI	<b>Art Unit</b> 3749	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 3-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 September 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)         | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application           |
| Paper No(s)/Mail Date _____   | 6) <input checked="" type="checkbox"/> Other: <u>reference WO2004036039</u> |

## **DETAILED ACTION**

### ***Status of Claims***

1. The following action is in response to the applicant's Amendment dated 9/28/2009, that was in response to the Office action dated 5/26/2009. Claims 3-9 are pending, claim 3 has been amended, while claims 4-9 are presented as previously claimed

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 3-9 have been considered but are moot in view of the new ground(s) of rejection. In view of the newly found art, it will be shown that the applicant's invention would have been obvious for the reason given below, briefly regarding a solar chimney able to withstand wind forces and having the folding unit as claimed. The previous 35 USC 112 rejections will be withdrawn in light of the applicant's remarks and amendments.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 3, 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Senanayake [5527216], further in view of De Luca [WO2004036039].

6. With respect to claim 3, Senanayake ['216] discloses an adjustable floating solar chimney, comprising: a main chimney unit (1) including a plurality of dynamically independent floating parts (3), wherein each dynamically independent floating part includes at least one cylindrical balloon ring [see FIG 2] containing non-flammable, lighter-than-air gas [col 3, line 20-27], and wherein each dynamically independent floating part further includes at least one supporting ring to withstand compressive forces [col 3, line 64-67, col 4, line 1-5], and wherein the at least one cylindrical balloon ring and the at least one supporting ring of each dynamically independent floating part are fixedly interconnected, (wherein this feature is understood by the use of the non-flexible struts that would be made into a ring) and wherein each dynamically independent floating part is separated from the adjacent dynamically independent floating part by an intervening balloon ring (11) configured to freely draw in and emit air, whereby each dynamically independent floating part is enabled to move independently of adjacent dynamically independent floating parts [col 3, line 34-54]. It should be understood that the chimney structure is fully disclosed by Senanayake ['216] in that there are independent floating parts having been filled with helium, and struts forming a support ring to prevent compression, and an intervening ring that allows for the drawing in of air. Senanayake ['216] further discloses a base unit (8) coupled to the main

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chimney unit [see FIG 1], and a chimney seat (6) configured to accommodate the base unit, wherein the chimney seat is interpreted to be a grounding means for the entire structure. Senanayake does not disclose a dynamically variable folding unit, the further disclose the details of the base unit or chimney seat, or that the apparatus is free standing. De Luca teaches a similar device that is free standing, configured to be substantially tiltable with respect to the vertical axis and can achieve an incline angle with respect to the vertical axis independent of the incline angles adjacent floating parts and shows a dynamically variable folding unit coupled to the base unit, wherein the dynamically variable folding unit is fastened to the lower ring of the base unit and has a flexible, accordion-like configuration, and wherein the dynamically variable folding unit includes a plurality of balloon rings and a plurality of supporting rings, and wherein the plurality of balloon rings of the dynamically variable folding unit each have one of an aperture and a valve configured to freely draw in and emit ambient air, whereby the dynamically variable folding unit is configured to bend in accordance with the orientation of the main chimney unit and the base unit, if used to modify Senanayake [see ABSTRACT, FIGs 2A-3, pages 3-5]. It is believed that since Senanyake shows the use of rings, they would have found it obvious to use the same structure for the base because it yields the predictable result of minimizing structure and therefore allowing for easy manufacturability. Also, in view of De Luca the apparatus is free-standing and tiltable with regard to a vertical axis. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use material that is tiltable with regard to a vertical axis because it was known that wind forces can limit that amount of solar

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exposure of the chimney, therefore having a free-standing, vertically tiltable structure yields the predictable result of maximizing solar exposure during any weather condition.

7. In view of De Luca the supporting portion allows movement in windy conditions and if applied to the structure of Senanayake would provide a flexible support. It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide such a support means, because it was recognize that high winds will cause the chimney to tilt, yielding the predictable result that a flexible support will provide bending without destroying the chimney structure. It would have also been obvious to a person of ordinary skill in the art at the time of the invention to further arrange the base unit and chimney seat unit as claimed because they would have the knowledge of different possible designs for the solar chimney while providing the same functionality as can be seen by Senanayake.

8. With respect to claim 4, Senanayake ['216] discloses the adjustable floating solar chimney according to claim 3, wherein the main chimney unit includes a double-wall configuration, and wherein the lighter-than-air gas is at least one of He and NH<sub>3</sub> [col 3, line 20-27].

9. With respect to claim 8, Senanayake ['216] discloses the adjustable floating solar chimney according to claim 3, wherein each dynamically independent floating part includes a selected number of cylindrical balloon rings and supporting rings [see FIG 1], and wherein each dynamically independent floating part is fastened independently to the base unit, using at least three threads (5, 6) of high strength and high modulus.

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10. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Senanayake ['216], in view of De Luca ['039], further in view of James [3918518].

11. With respect to claim 5, Senanayake ['216] disclose the adjustable floating solar chimney according to claim 3, wherein the at least one cylindrical balloon ring containing non-flammable, lighter-than-air gas [col 3, line 20-27], however does not disclose that the ring is made of strengthened plastic. James teaches a similar device wherein the ring portion is made of strengthened plastic [col 3, line 6-12]. In view of James, the walls of the ring is made of plastic. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use a strengthened plastic material because the option was known in the art, yielding the predictable result of providing also a light material that can float.

12. With respect to claim 6, Senanayake ['216] the adjustable floating solar chimney according to claim 3, wherein the at least one supporting ring [col 3, line 64-67, col 4, line 1-5], is an articulated structure including a plurality of segments, however does not disclose the material. James teaches a similar invention wherein a supporting ring (17) made of one of: a) hard plastic; b) composite material; and c) aluminum [col 3, line 6-7]. In this case, the support ring (17) is made of a similar material as the balloon ring, which was previously disclosed that the material is plastic. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use a hard plastic material because the option was known in the art, yielding the predictable result of providing also a light material that can float.

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13. Claims 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Senanayake ['216], in view of De Luca [,039], further in view of Senanayake [WO9604443].

14. With respect to claim 7, Senanayake ['216] discloses the adjustable floating solar chimney according to claim 3, wherein the balloon rings are connected to the supporting rings [see FIG 1]. It is disclosed that they are in flexible connection, however it is not disclosed that the rings are connected using high strength threads, which is believed to be a design choice since the current manner of securing the rings provides the same advantage as the wires. Senanayake ['443] teaches a similar device using threads (15) to support adjacent rings. In view of Senanayake ['443], the rings are connected via high strength threads. It would have been obvious to a person of ordinary skill in the art at the time of the invention to connect the rings in the manner claimed because the technique was known in the art, yielding the predictable result of maintaining an adjacent relationship between rings.

15. With respect to claim 9, Senanayake ['216] discloses the adjustable floating solar chimney according to claim 3, wherein the upper ring and the lower ring of the base unit are tied with a plurality of threads having high strength and high modulus, the plurality of threads being surrounded by a flexible plastic film of high strength, however does not disclose an air escaping prevention means. Senanyake ['443] teaches a similar device wherein the plurality of threads are surrounded by a flexible plastic film whereby air in the solar chimney is prevented from escaping between the upper ring and the lower ring of the base unit [see FIG 1]. In view of Senanayake, the panels (20) prevent escaping of

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air. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use a tying means with high strength modulus because the technique was known, yielding the predictable result of maintaining a secure connection during high winds.

### ***Conclusion***

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AVINASH SAVANI whose telephone number is (571)270-3762. The examiner can normally be reached on Monday- Friday, alternate Fridays off, 7:30-5 EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven McAllister can be reached on 571-272-6785. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Avinash Savani/  
Examiner, Art Unit 3749

/Steven B. McAllister/  
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3749

/A. S./  
1/14/2010